Claims

1. Hall sensor array comprising:

a first (1A, 1B) and at least one additional pair (2A, 2B; 2A, 2B, 3A, 3B) of Hall sensor elements,

wherein each Hall sensor element (1A, 1B, 2A, 2B; 1A, 1B, 2A, 2B, 3A, 3B) has four terminals (K1, K2, K3, K4), of which a first and a third terminal (K1, K3) act as power supply terminals for supplying an operating current ($I_{operation}$) and a second and a fourth terminal (K2, K4) act as measurement terminals for measuring a Hall voltage (U_{Hall}),

wherein the Hall sensor elements (1A, 1B, 2A, 2B; 1A, 1B, 2A, 2B, 3A, 3B) are so arranged that the current directions of the operating current ($I_{operation}$) in the two Hall sensor elements of each pair are offset at an angle of approximately 90° to one another,

wherein the Hall sensor elements (2A, 2B; 2A, 2B, 3A, 3B) of the additional pair(s) are so arranged that their operating current directions are offset at an angle of approximately 90°/n to the operating current directions of the first pair (1A, 1B) of Hall sensor elements, n being the total number of Hall sensor element pairs and $n \geq 2$, and

wherein the first terminals (K1), the third terminals (K3), the second terminals (K2) and the fourth terminals (K4) of the Hall sensor elements (1A, 1B, 2A, 2B; 1A, 1B, 2A, 2B, 3A, 3B) are respectively connected to each

other electrically, thus permitting the operating current ($I_{operation}$) to be supplied over the electrically interlinked first and third terminals (K1, K3) of all the Hall sensor elements and the Hall voltage (U_{Hall}) to be measured over the electrically interlinked second and fourth terminals (K2, K4) of all the Hall sensor elements (1A, 1B, 2A, 2B; 1A, 1B, 2A, 2B, 3A, 3B).

2. Hall sensor array according to claim 1, wherein the first terminals (K1), the third terminals (K3), the second terminals (K2) and the fourth terminals (K4) of the Hall sensor elements (1A, 1B, 2A, 2B; 1A, 1B, 2A, 2B, 3A, 3B) are respectively connected together electrically by being interwired.

3. Hall sensor array according to claim 1 or 2, wherein the Hall sensor elements of the first and the second pair respectively are arranged next to each other.

4. Hall sensor array according to claim 1 or 2, wherein the Hall sensor elements of the first and the second pair are arranged along a diagonal.

5. Hall sensor array according to one of the claims 1 to 4, wherein the Hall sensor elements of the first and the second pair are arranged close to one another relative to the dimensions of the Hall sensor elements.

6. Hall sensor array according to one of the claims 1 to 5, which also includes switches (S1, S2, S3, S4) and wherein the terminals (K1, K2, K3, K4) of the Hall sensor elements (1A, 1B, 2A, 2B) are connected to the switches (S1, S2, S3, S4), so that the power supply ter-

minals for supplying an operating current ($I_{operation}$) and the measurement terminals for measuring a Hall voltage (U_{Hall}) can be switched through 90° from one measurement to the next.

7. Hall sensor array according to one of the claims 1 to 6, which also includes a control unit by means of which the switches (S1, S2, S3, S4) are controllable in such a way that the Hall sensor array is operable in spinning current operation.

8. Hall sensor array according to one of the claims 1 to 7, wherein the Hall sensor elements of a pair are geometrically identical.

9. Hall sensor array according to one of the claims 1 to 8, wherein the Hall sensor elements of different pairs are geometrically different.